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Using Strategic Social Marketing to Promote Healthy Nutrition and Physical Activity Behaviors to Parents and Children in Switzerland: The Development of FAN

Natalie Rangelov, MA¹

L. Suzanne Suggs, PhD, MS, CHES²

¹ BeCHANGE Research Group, Institute for Public Communication, Faculty of Communication Sciences, Università della Svizzera italiana.

² BeCHANGE Research Group, Institute for Public Communication, Faculty of Communication Sciences, Università della Svizzera italiana and Visiting Reader, Institute of Global Health Innovation, Faculty of Medicine, Imperial College London.

Corresponding Author: Natalie Rangelov, MA; Università della Svizzera italiana, ICP Via G. Buffi 13, CH – 6900 Lugano. Telephone: +41-58-666-42-94; E-mail: natalie.rangelov@gmail.com.

Suggested Citation: Rangelov N, Suggs LS. Using strategic social marketing to promote healthy nutrition and physical activity behaviors to parents and children in Switzerland: the development of FAN. *Cases in Public Health Communication & Marketing*. 2015;8:27-50.

Available from: www.casesjournal.org/volume8.

www.casesjournal.org

Abstract

Background. Poor nutrition and physical inactivity are among the primary determinants of overweight and obesity. Childhood overweight and obesity are the highest in Switzerland's most southern state (Canton Ticino). One policy initiative to address the problem was the "Healthy Weight Program" sponsored by the Ticino Cantonal Department of Health and Social Affairs. The program included several school and community based initiatives, including a community-based, social marketing initiative called "Famiglia, Attività fisica, Nutrizione" (FAN).

Methods. This case study presents data collected from the FAN project during the formative research, implementation, and post-intervention phases of a larger randomized controlled trial. Results presented describe the development process of the program in accordance with social marketing benchmark criteria, participation and retention rates, and program satisfaction.

Results. The social marketing benchmark criteria were operationalized and implemented in the development of FAN. The recruitment goal of 250 families was exceeded, with 555 families enrolled and 543 deemed eligible. Seventy-two percent completed the immediate post-program evaluation questionnaire. Almost 85% of parents evaluated FAN positively. The majority stated that FAN met their expectations (65%), motivated them to eat healthier (60%), and engage in more physical activity (40%). The majority of parents and children were satisfied with the various components of the program and found them useful.

Conclusions. Co-creation activities and following the social marketing framework were considered to be instrumental in achieving high levels of consumer participation and satisfaction with this community-based program. The time necessary to do strategic social marketing, was time well spent.

Keywords: Social marketing, Body weight, Child, Parents, Health behavior, Physical activity, Nutrition.

Introduction

Poor nutrition and physical inactivity can contribute to overweight and obesity. In Switzerland, only 19% of the population consumed at least five portions a day of fruit and vegetables,¹ and about 60% was completely inactive or only moderately physically active (one to two times per week).^{2,3} Children in Switzerland have low fruit and vegetable consumption with roughly 55% of girls and 40% of boys consuming fruit and vegetables daily. Only 26% of girls and 45% of boys engaged in physical activity for more than four hours per week.² Roughly 30% of adults in Switzerland were overweight and 10% were obese,^{1,2} and approximately 15% of children were overweight and 5% were obese in 2010-2011.^{2,4} The southern region of Switzerland (Canton Ticino, the only one of the 26 Swiss cantons or states where Italian is the sole official language) had the highest rates of adult overweight and obesity (39.9% versus 38.9% in the German part and 38.8% in the French part), and of childhood overweight (17%) and obesity (6%).⁵⁻⁸ Canton Ticino also had the lowest rates of physical activity in Switzerland, with 48% of the population being inactive.^{2,9}

Being overweight or obese in childhood increases the likelihood to stay overweight or obese in adulthood, and thus the likelihood to develop chronic diseases.¹⁰ Lifestyle habits developed in childhood are highly correlated with behaviors in adulthood.^{10,11} Hence, it is of great importance to focus on behavior change, as well as on maintenance of healthy behaviors in childhood.¹² *Famiglia, Attività fisica, Nutrizione (FAN)*, was a physical activity and healthy diet social marketing program for families in

Ticino that had children attending elementary school or the first two grades of middle school (ages 6 to 12). FAN communicated directly with children and parents through print, web, e-mail, and mobile phones about the importance of healthy eating and physical activity, and ways in which to improve or maintain healthy eating behaviors and physical activity levels. Communications were tailored to the role in the family (parent or child), gender, number of children, child's grade in school, and which behavior (eating or physical activity) each participant perceived to be the most difficult for them.^{13,14}

The objectives of FAN were to reach a representative sample (≥ 250 families) of families from diverse social-economic groups across the Canton Ticino, improve or maintain healthy eating and activity behaviors,^{13,14} serve as a communication instigator in the family, and be appreciated by the population. A final objective was to integrate research into a public service by establishing a public-public partnership between the Canton Ticino and the Università della Svizzera italiana.

In this paper, we describe the use of the social marketing framework in developing a program for healthy eating and physical activity behaviors of children and parents. We describe participants' satisfaction with the FAN program, participation and retention rates, and we present lessons learned that may assist other planners in developing health programs that reach a large percentage of the population and one that the participants are satisfied with.

Background

The Ticino Cantonal Department of Health and Social Affairs' "Peso Corporeo Sano" ("Healthy Body Weight") program aimed to raise awareness and provide information about physical activity and nutrition topics, increase awareness about nutrition related policy, and facilitate networking between stakeholders.¹⁵ The "Healthy Body Weight" program included several school and community based initiatives for infants, children, parents, teachers, health care providers, and the general population. FAN was one of the projects offered within the "Healthy Body Weight" program,^{13,14} in collaboration with the BeCHANGE Research Group at the local University, and was the only project that communicated directly with families in the home setting. FAN was offered free of charge to families.

Social Marketing to Improve Physical Activity & Eating Behaviors

Social marketing "seeks to develop and integrate marketing concepts with other approaches to influence behaviours that benefit individuals and communities for the greater social good."¹⁶ In this recently published definition, the authors also underline that "Social Marketing practice is guided by ethical principles. It seeks to integrate research, best practice, theory, audience and partnership insight, to inform the delivery of competition sensitive and segmented social change programmes that are effective, efficient, equitable and sustainable."¹⁶ The key concepts of social marketing are that it is based on commercial marketing principles, it focuses on behavior, and aims to enhance the public good, and thus benefit society.¹⁷⁻²¹

Social marketing is an effective approach in countering and preventing obesity and overweight.²²⁻²³ Positive results are found in the academic literature and several policy documents, where social marketing is highlighted as the recommended approach for promoting physical activity and healthy eating behaviors.²⁴⁻²⁶ The evidence of its utility has been documented across settings, countries and behaviors.^{22,27-29} Social marketing programs have positively influenced nutrition and physical activity knowledge and behaviors,^{23,27,28,30} as well as psychosocial variables (attitudes and self-efficacy).²⁷ Methods used to influence nutrition and physical activity behavior include educational approaches promoting a healthy diet, peer modeling, meetings with dietary consultants, gym classes in the school curriculum, and the creation of walking and cycling paths.^{22,23,27,30-33} Some interventions have also promoted policy and environmental changes to increase opportunities to be physically active.^{22,27,32}

Interventions targeting children that involve parents both in the development and the implementation of the intervention seem to have good outcomes.^{34,35} Community-based social marketing programs have demonstrated success in changing nutrition and physical activity behaviors as well as in recruitment and retention.^{22,36-38} This study builds off of these previous successes by involving parents and children in the development of the intervention, and setting a first example of such a program in Canton Ticino, Switzerland.

Methods

Study Design

This case study presents data collected during the formative research, implementation, and post-intervention phase of a larger, randomized controlled trial. The study design is pre-experimental; that is, no pretest to posttest results are presented and there are no comparison or control groups. The results presented are immediately post-intervention only, descriptive, and include a description of how the program was developed in accordance with the social marketing benchmark criteria, participation and retention rates, and program satisfaction. The local Ethics Review Committee reviewed the study and deemed it exempt in accordance with Swiss law for research with human subjects.

Sample & Sample Recruitment

This study was conducted in the Canton Ticino, Switzerland, a Canton with one of the highest rates of obesity and overweight among adults and children.⁵⁻⁸ The target audience was families of elementary and middle school aged children. However, this was not a school-based intervention. Instead, parents were recruited to participate through schools and other venues, but the program was delivered directly to parents and children in their home environment.

Formative Research Sample and Recruitment.

Formative research was done in order to gather information about participants' behavior and preferences related to nutrition and physical activity, insight about their expectations and needs, but also to pretest some of the materials developed. To recruit participants for the interviews and focus groups, the research team contacted a sample of schools

in Ticino and published press releases in the local newspapers, inviting parents of children aged 6 to 12 to participate in the formative research, the pretest, and co-creation activities. A total of 12 parents and 13 children responded to the invitation to participate in the pretest activities. Another 14 parents and 25 children agreed to participate in the co-creation activities. Two dieticians, several school directors and teachers, and the Department of Health and Social Affairs also participated in various formative research activities.

Intervention Sample and Recruitment. FAN program recruitment began in May and ended in September of 2010, with September being the period of major effort. The objective was to recruit a sample of at least 250 families from across the Canton Ticino to participate in the intervention, including those who were overweight, healthy weight, and underweight, those who needed to improve behaviors, as well as those who needed to maintain them. Recruitment was conducted through brochures and posters, and media outlets. A total of 488 posters and 19,337 brochures were distributed to schools. Six press releases were developed and one interview was published in the local newspaper and on radio.

All promotional materials provided an Internet link to a website for registration. In order to register, parents had to complete an online form on the FAN website, indicating their and their children's personal data (name, last name, gender, date of birth, grade at school), their family's contact information (e-mails, phone numbers, mailing address), as well as providing parental consent for their family and child to participate. The research team then contacted the

families, sent a link to the online baseline survey to parents, and mailed a print version for children to complete. In order to be enrolled, parents had to provide consent and complete the baseline survey; the child's completion of the baseline survey was not a criteria for inclusion.

Six hundred ninety-five families registered for the program and 555 families (80%) completed the enrollment procedures. This included 556 parents (one family had two parents subscribed) and 750 children.¹³ After excluding ineligible cases (ie, families that provided wrong information, enrolled children in kindergarten or in higher grades at school) and those that did not receive the online content because of technical problems (eg, service providers were not working or other technical issues), the final baseline sample consisted of 543 parents and 735 children. The retention rate was 71.5% for parents and 50.3% for children at the immediate posttest program evaluation interval.^{13,14}

FAN Program Development & Implementation

Program Development. FAN was developed in collaboration with the Department of Health and Social Affairs in Canton Ticino, the BeCHANGE Research Group at the Università della Svizzera italiana, teachers from elementary and middle schools, parents, and children. The program was developed using the social marketing framework, which suggests that programs should adhere to a set of eight benchmark criteria, including: 1) citizen orientation, 2) behavior, 3) theory, 4) insight, 5) exchange value, 6) competition, 7) segmentation, and 8) methods mix.^{29,30,39-41} The benchmark criteria were closely followed during FAN program development and implementation process. A summary of how the eight benchmark criteria were used is illustrated in Table 1.

Co-creation and desk research guided the program's content. Content was based on materials from other campaigns and interventions promoted by the Canton Ticino and the Swiss national office for health promotion, Health Promotion Switzerland. Letters for children, as well as website, e-mails, and Short Message Service (SMS) content were developed with parents' and children's input.^{13,14} During the focus groups and interviews, examples of materials were pretested with the target audience. Participants provided oral feedback and suggested ways to improve the materials. Children wrote and drew directly on the letters, indicating what they liked, but also what was not clear to them, and then provided additional feedback verbally.

To illustrate and model behaviors, short videos about physical activity and nutrition were produced with the community. Additionally, graphics portraying a family modeling healthy nutrition and physical activity behaviors were designed specifically to visually represent and complement the communication content. The videos and final graphics were based on the results of the formative research, however they were not pretested. The FAN program content, all text, videos, and graphics were approved by the the Department of Health and Social Affairs and Health Promotion Switzerland prior to implementation.

Program Implementation. FAN was offered free of charge to families and the program provided eight weeks of tailored communications designed to help families improve or maintain nutrition and physical activity behaviors. Every week, parents received online, e-mail, and mobile phone-based communications, while children received printed letters sent by post each week.^{13,14} The program intervention lasted eight weeks, between September 2010 and December 2010.

Table 1. Social Marketing Benchmark Criteria and FAN Process.

Benchmark Criteria	Definition	FAN Implementation
Customer Orientation	Conduct formative research to understand the behaviors, the attitudes and beliefs, wants and perceived needs of the target audience.	<ul style="list-style-type: none"> • Desk research • 4 Focus groups and 10 interviews were conducted. • Co-creation activities, including 20 videos. • 26 parents and 38 children were involved. • The program was developed for families' reported needs and wants.
Behavior	Social marketing interventions focus on a specific behavior, setting specific goals, and measurable objectives.	<ul style="list-style-type: none"> • Physical activity (goal: improve or maintain PA levels). • Nutrition (goal: increase or maintain fruit and vegetable consumption).
Theory	Theory is used to guide the development of social marketing programs. Different theories and models can be used for different interventions, depending on the situation, population, and topic of the intervention. The first benchmark helps the identification of the theory to be used.	<ul style="list-style-type: none"> • The Theory of Planned Behavior guided the development of the communication content. • Perceived behavioral control, attitudes, social norms, and intention were addressed.
Insight	Insight refers to the understanding of the motivators toward a behavior, as well as other elements that influence the behavior of the target audience.	<ul style="list-style-type: none"> • Formative research (focus groups and interviews, see benchmark 1) allowed understanding Ticino families' motivators and barriers towards adopting or maintaining the desired behaviors.
Exchange Value	Value exchange is about understanding the costs and the benefits associated with the desired behavior. It also includes creation of value for the audience through rewards and incentives.	<ul style="list-style-type: none"> • Healthy diet and regular physical activity were positioned as achievable behaviors for all and as more beneficial than competing behaviors. • Barriers were addressed. • Benefits were highlighted in the communication.
Competition	Internal and external analysis should be conducted to better understand what competes for the attention, time, and behavior of the target audience, and also to plan properly, in order to reduce the impact of these factors.	<ul style="list-style-type: none"> • SWOT Analysis was conducted to identify competitive behaviors and barriers (sedentary occupations, lack of facilities, time, unhealthy food promotion, price, etc.). • Competitive behaviors and barriers were analyzed and the communication was designed to help families overcome them.
Segmentation	Identification of the people that share similar characteristics, views, and behaviors is needed to plan and tailor the intervention so that it meets the needs and wants of the target population.	<ul style="list-style-type: none"> • Parents segmented according to: their gender, behavioral difficulty, number and gender of children, and child's behavioral difficulty. • Children segmented according to gender and grade at school. • Content was tailored to all participants.
Methods mix	Develop the appropriate mix of methods that will influence the behavior. This means the marketing mix, including product, price, place, promotion, partnership, and policy.	<ul style="list-style-type: none"> • Strategies for all six P's were developed in the marketing mix. • Product <ul style="list-style-type: none"> o Core: better health o Actual: healthy diet and physical activity o Augmented: website, e-mail, SMS, letters, forum, dietary consultant, video, recipes, etc. • Place: home environment • Price: non-monetary costs (time and effort); participation free of charge. • Promotion: fliers and posters sent to schools; press releases and interviews published in the local media outlets. • Policy: FAN was part of the "Healthy Body Weight" cantonal program and was funded as part of a strategic policy decision of the Canton. • Partnerships: collaboration among the Canton, the University, the national health promotion office, teachers, dieticians, and the target audience.

Data Collection & Measures

Formative Research. The formative research was conducted between October 2009 and August 2010. Formative research activities started with desk research that provided evidence about programs that work. A literature review was conducted in order to understand the situation in Ticino regarding physical activity and nutrition behaviors, as well as to collect additional evidence about existing programs in the Canton.

To gather information about the factors influencing dietary and physical activity behaviors, four focus groups were held (two with parents and two with children) with a total of 7 parents and 8 children. Ten structured interviews with 5 parents and 5 children were conducted separately. Two trained moderators led the focus groups and interviews, which were also audiotaped with participant's consent. Both the interviews and the focus groups lasted about one hour each, and consisted of questions related to nutrition and physical activity behaviors and preferences, expectations from a project promoting healthy diet and regular physical activity, as well as to the satisfaction and understanding of a sample of program materials (brand, content, assessments). To enhance our understanding of the audience, the Department of Health and Social Affairs specified information on physical activity and nutrition rates, habits, and needs in Canton Ticino.

Additional formative research activities included co-creation activities with members from the community, including 14 parents, 25 children, teachers, school administrators, dieticians, and students in a masters level course on social marketing, who helped to inform the brand, program timeline, data collection instruments, communication content and channels, and message timing. The dieticians provided insight regarding the nutrition related content and recommendations, and the school

directors and teachers provided input regarding the content for children.

Post-Implementation Data Collection. As part of the enrollment, baseline surveys were completed between September 13th and September 22nd 2010. Immediately post-intervention, between November 29th and December 5th 2010, follow-up questionnaires were used to evaluate participant satisfaction with the program. Questionnaires were sent online to parents and by mail to children. As an incentive to participate in the follow-up assessments, a lottery was organized at the end of the study, for all participants that completed all assessments.

Satisfaction measures included 19 items, commonly used in measuring satisfaction with social marketing and community-based programs, such as “did you like the program?,” “was the website useful?,” “would you like to participate again?” These questions were then adapted for this context.⁴²⁻⁴⁴ Data collected from parents reflected the following: global satisfaction with the program; how much FAN met participants' expectations; easiness in finding information on the website; whether FAN motivated parents and their children to practice physical activity and eat healthy; parents' satisfaction with children's letters; parents' satisfaction with the language used in children's letters; usefulness of the website; usefulness of the forum; usefulness of the video; satisfaction with the videos; satisfaction with the weekly e-mail and SMS messages; usefulness of e-mails and SMS as reminders to visit the website; likelihood of participating again in FAN; likelihood of participating in similar projects; and other positive and other negative aspects. Data collected from children reflected the following: overall satisfaction with FAN, satisfaction with the letters, satisfaction with the videos, and the likelihood of participating again in FAN.

The data collection instruments were tested with students of the university's social marketing course (which included some parents of young children), followed by parents and children from Canton Ticino. Existing questionnaires used in other studies, such as the PACE study, IPAQ short form, and the "Diamoci una Mossa" questionnaire, from the Italian Union Sport for All were used as a starting point.⁴⁵⁻⁴⁷ After issues of format, ease of completion, and wording were addressed with the students in the social marketing course, parents and children completed and reviewed the assessment tools and suggested solutions for improvement.

Analysis

The results from the focus groups and interviews, as well as information collected informally

(through discussions, phone calls, etc.), was stored and analyzed qualitatively. The research team reviewed the answers provided by the participants (both children and parents), and carefully considered the information provided by the other community members. The information and feedback received was then used to develop the materials for FAN.

Satisfaction measures were collected through an immediate post-intervention follow-up survey. Quantitative data were analyzed with SPSS (IBM SPSS Statistics 21.0), while qualitative data were analyzed with Atlas.ti. Descriptive statistics and frequencies were performed and included means and percentages for the responding parents and children.

Results

The process for development of the program using the social marketing benchmark criteria is described below, followed by program participant characteristics, motivation, and satisfaction results.

The Social Marketing Framework & FAN

Citizen orientation. To design a project that best suited the needs and the interest of Canton Ticino families, their involvement in the development of FAN was crucial. The brand (name and logo of the project) was developed through brainstorming sessions with the researchers and the target audience. The goal was that the brand would represent the key components and objectives of the program, while being appealing, recognizable, and rememberable by both adults and children. In brainstorming sessions

among the researchers at the University and students from the social marketing class, terms referring to the key components of the program were developed. Associations were made with terms such as: family, parents, children, healthy nutrition, regular physical activity, health, lifestyle, fun, etc. Several names were chosen and pretested with researchers, stakeholders, and families.

The name that was considered to be the most appropriate, appealing, recognizable, and rememberable was the acronym FAN, which stood for "Famiglia, Attività fisica, Nutrizione" (in English, Family, Physical Activity, Nutrition). The design and development of the logo occurred in a similar fashion. Again, the criteria of appeal, recognition, memorability, and association with the

key components were considered. The research team developed logo designs and pretested the options with the target audience.

The timeline for the FAN program was determined based on consensus between participants, partners' requirements, and researchers. Research suggests that similar programs span at least 12 weeks.^{32,48-50} Stakeholders were hesitant to enroll in a three-month program, due to the perceived burden and time commitment. They informed us that eight weeks was more reasonable and might allow us to reach more of the target population. Furthermore, a longer program would mean that the program overlapped with winter holidays and may have led to lower participation and retention rates. Thus, FAN spanned a period of eight weeks.

Parents indicated that Internet, e-mail, and SMS were acceptable and preferred channels for this program, as they allowed families to access the program at times most convenient to them. However, parents did not want any communications directed toward children to be online and preferred to have printed materials mailed out for children. They also informed us that they preferred to get new, updated information only once per week, rather than more often. Thus, a weekly thematic scheme was developed, in accordance with nutrition and physical activity recommendations (Swiss Society for Nutrition, WHO) guided by theories of behavior change, and participant input, and new content was added each week (see Table 2). Once new content was available, parents received an e-mail or a SMS with a brief summary of the content and a prompt to visit the website, and children received a printed, tailored letter in the mail.

The content was organized according to the FAN weekly themes, and it was adapted to the local community. Parents reported wanting easy access

to information about the behavior they were having the most difficulty with. Thus, the content of the website was divided into two behavior sections: "Attività fisica" (physical activity), and "Nutrizione" (nutrition). Parents wanted to know about ways to improve their own behaviors, but also those of their family, so practical examples relating to both adult and child behavior were included in the weekly content of the nutrition and physical activity sections. Parents who were already eating in a healthy way and/or were practicing an adequate amount of physical activity, asked for more support and encouragement to maintain their behavior. They requested more examples and practical tips (eg, recipes, concrete physical activities, and events) to be able to maintain their healthy behaviors, but also to encourage their children to do the same. A third section was added and called "Famiglia" (family). This section gave advice on how to introduce and maintain behaviors in the family environment, thus promoting collective family engagement in healthy lifestyle activities. It also reinforced parents' role modeling, and promoted the activities that were proposed in the forum both from FAN, and from the parents directly, hence including participants ongoing co-creation activities.

Parents also wanted to be able to speak with a dietary consultant about problems in getting their children to eat healthier; hence, a forum with a weekly appointment with a local dietician was implemented on the FAN website. To address privacy concerns, each parent was assigned a pseudonym and given a unique login ID and password. Parents were also able to contact the dietician via a private message by e-mail. Parents also told us they needed recipes for healthy meals that were quick, inexpensive, and appealing to children. So, we created an online recipe library and suggested specific recipes each week on the website, as well as in the letters to children.

Table 2. Weekly Themes for FAN Content.

Week	Themes for Nutrition	Themes for Physical Activity
1	Chi ben comincia... è a metà dell'opera! <i>[You are off to a good start and that is half the battle!]</i>	Chi ben comincia... è a metà dell'opera! <i>[You are off to a good start and that is half the battle!]</i>
2	Il ruolo dei genitori <i>[Modeling behavior]</i>	Il ruolo dei genitori <i>[Modeling behavior]</i>
3	La colazione <i>[Breakfast]</i>	Al chiuso o all'aperto, basta fare movimento <i>[Indoor or outdoor, what is important is to practice PA]</i>
4	Piccoli passi per grandi risultati <i>[Small steps for big results]</i>	Da soli o in compagnia, tante occasioni per muoversi <i>[Alone or together, lots of opportunities to do PA]</i>
5	Pranzo e merenda con fantasia <i>[Lunch and snacks with imagination]</i>	Sani in tutta flessibilità <i>[Flexibly healthy]</i>
6	È tutta una questione di strategia <i>[It is all about strategy]</i>	È tutta una questione di strategia <i>[It is all about strategy]</i>
7	Ogni stagione offre nuove opportunità <i>[Every season offers new opportunities]</i>	Piove, piove, la gatta non si muove... ma io sì <i>[It rains, the cat does not move, but I do]</i>
8	Non c'è vita senza acqua <i>[There is no life without water]</i>	Non c'è vita senza acqua <i>[There is no life without water]</i>

Behavior. The behavioral goal of FAN was to encourage initiation, improvements, and/or maintenance of healthy nutrition and adequate amounts of physical activity. In particular, the focus of FAN was to promote the recommended amount of physical activity each day and to encourage adherence to nutrition guidelines, in particular regarding fruit and vegetable consumption, sugar and fat consumption, as well as water consumption.

Theory. FAN content was informed by the Theory of Planned Behavior (TPB).⁵¹ TPB suggests that perceived behavioral control, attitudes, and subjective norms predict intentions to engage in a specific behavior, and intentions, in turn, predict behavior. These concepts were considered for the framing of the communication content delivered weekly to parents and children. To address and increase perceived behavioral control, the content included suggestions on how to cope with barriers (such as time, weather, prices, and difficulty). The content also reinforced positive behaviors.

In order to positively influence attitudes, ideas about ways to eat healthy and practice regular physical activity were suggested, highlighting the benefits and positive aspects (such as having fun, being with the family, improve health, and many others). To promote positive subjective norms towards healthy eating and regular physical activity, parents were encouraged to model healthy behaviors and to explicitly encourage their child to engage in these behaviors. Communications reinforced healthy behaviors as being the norm, and thus expected behavior. Finally, to improve behavioral intentions, strategies were suggested for planning behaviors, such as scheduling physical activity, preparing shopping lists, and preparing for difficult and/or unexpected situations (ie, seasonal variability of fruits and vegetables, rainy and snowy weather).

Insight. During the focus groups and interviews, barriers such as time, costs, or efforts, and motivators such as the health of their children, physical and mental fitness, were also gathered.

Program content was developed to address perceived barriers. The information on the website, the e-mails, the SMS, and the letters provided suggestions of ways to better cope with barriers, but also to reduce perceptions that these factors were hindering healthy behaviors. In the weekly communications, FAN underlined the motives that parents expressed as being important, such as the health of their children, their own health, weight control, wellness post-workout, feelings of wellbeing after a healthy meal, being a role model for their children, dedicating time to the family, and many others.

Exchange value. According to Sutton and colleagues “Creating & maintaining ‘fair exchanges’ is the heart of marketing.”⁵² To convey the message that following a healthy diet and practicing regular physical activity are fair exchanges for competing time demands and behaviors, the program positioned healthy diet and regular physical activity as achievable behaviors for all, and as more beneficial than competing behaviors. Ideas were also provided about ways to introduce behavior change in a feasible manner by taking small steps, selecting affordable options, and using time management techniques.

Competition. A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis was conducted, to identify competitive behaviors and barriers to adopting or maintaining a healthy diet and regular physical activity. Competitors to regular physical activity included sedentary occupations, computer use, television watching, time spent sitting at work or school, lack of sport facilities, public transportation fees, and time. Competition to eating a healthy diet included the temptation of unhealthy food promoted in grocery shops, on TV, billboards, or packages for children, the high price of healthy food options, and lack of time to prepare healthy dishes that appealed to the whole family.

Segmentation. The content of FAN was designed for several target audience segments, including mothers, fathers, and children in elementary school and the first two grades of middle school. Within the child segment, further segmentation included the child’s gender and grade level. With assistance from a schoolteacher, content was targeted for cognitive skills and reading level (such as vocabulary, number of words, font type and size, graphics, and videos). Furthermore, communication was gender-specific because of Italian grammar rules for addressing the gender of the child by using appropriate endings as shown in the following example (eg, “Ciao Maria, sei andata al parco?” vs. “Ciao Mario, sei andato al parco?”; “Hello Maria/Mario, did you go to the park?”). Parents were segmented according to their gender, which behaviors were most difficult for them to perform (ie, physical activity, diet or both), the number of children, gender of children, and their child’s behavioral difficulty.^{13,14} Examples of messages for the different segments are shown in Table 3.

Methods’ mix. FAN addressed all six P’s of the social marketing mix: product, place, price, promotion, partnership, and policy.

Product. FAN used the full product platform with three levels of product: core, actual, and augmented. The core product of FAN was better health. The actual product was practicing physical activity for at least 30 minutes per day for adults and for at least 60 minutes per day for children, and to consume a healthy diet, which included eating five portions of fruit and vegetable per day. FAN also promoted having breakfast every day, drinking the recommended amount of water, getting some warm up before physical activities and stretching at the end of it. FAN provided several augmented products, including a website, short messaging service (SMS), e-mails, and letters, each designed to support the actual product.

Table 3. Examples of Tailored Messages.

Segmentation and tailoring variables	Message	Message translated into English
Mother (difficulty = physical activity), with 1 boy (difficulty = diet)	“ <i>Gentile Signora Rossi</i> , andare al lavoro a piedi è un ottimo modo per aggiungere un po’ di attività nella sua quotidianità! Quando prepara la merenda per <i>suo figlio</i> , pensi ai diversi tipi di frutta che <i>gli</i> può proporre.”	“ <i>Dear Mrs. Rossi</i> , walking to work is a great way to add some physical activity in your everyday life! When you prepare the afternoon snack for <i>your son</i> , think about the different fruits you can propose to <i>him</i> ”
Mother (difficulty = physical activity), with 1 girl (difficulty = diet)	“ <i>Gentile Signora Rossi</i> , andare al lavoro a piedi è un ottimo modo per aggiungere un po’ di attività nella sua quotidianità! Quando prepara la merenda per <i>sua figlia</i> , pensi ai diversi tipi di frutta che <i>le</i> può proporre.”	“ <i>Dear Mrs. Rossi</i> , walking to work is a great way to add some physical activity in your everyday life! When you prepare the afternoon snack for <i>your daughter</i> , think about the different fruits you can propose to <i>her</i> ”
Mother (difficulty = diet), with 2 girls (difficulty = physical activity)	“ <i>Gentile Signora Bianchi</i> , non si dimentichi di consumare frutta e verdure in abbondanza! Se le <i>sue figlie</i> non hanno voglia di fare attività fisica, <i>le</i> stimoli accompagnandole a fare un percorso vitae.”	“ <i>Dear Mrs. Bianchi</i> , do not forget to eat enough fruits and vegetables! If <i>your daughters</i> do not want to practice physical activity, encourage <i>them</i> by going with <i>them</i> to do a trail run”

The website supported behavior improvement and maintenance within the whole family. Every week, a new theme for nutrition and for physical activity were introduced. A forum feature was available for parents, where they could discuss concerns or strategies that worked well for them. Recipes and practical examples for healthy menus, and physical activity were also provided. A dietary consultant was available for parents, and reachable through the forum or via private message. Videos were included, that promoted healthy behaviors and provided suggestions for implementation. Further, to remind the participants about the new, weekly updated content, tailored prompts were sent via SMS and e-mail, directing families to the website. Tailored letters were sent directly to children each week, to support the core product.

Place. FAN was a community-based intervention that complemented and reinforced other interventions of the “Healthy Body Weight” cantonal program that took place at schools, in canteens and restaurants, and households. FAN specifically targeted the home environment.

Price. The costs to participants were primarily of a non-monetary nature. No participation fee was charged. An investment in time and effort was needed to read the provided content, complete the assessments, as well as to practice physical activity and prepare healthy meals. FAN tried to minimize the non-monetary costs of adopting the actual product, for example by providing short communication, and suggestions on better time management.

Promotion. To maximize reach, FAN was promoted through the schools, and the media. Teachers sent fliers home to every child in the school, and several articles and radio interviews were published in local media outlets.

Policy. FAN was funded as part of a strategic policy decision of the Canton Ticino. The “Healthy Body Weight” cantonal program included 11 healthy diet and physical activity promotion projects, including FAN.¹⁵

Partnership. FAN was developed in a collaborative partnership between the Canton Ticino, the

University, the national health promotion office, teachers, dieticians, and the target audience. The co-creation activities previously described, reinforced and strengthened partnerships among parties.

FAN Program Participant Characteristics & Satisfaction

Participant characteristics. The majority of adult participants were women (86.2%) and of Swiss nationality (84.9%). The mean age was 41 years (range = 27 to 61, SD = 5.09). The weight distribution of adult participants included 6.3% obese, 21.5% overweight, 65.0% healthy weight, and 5.3 % underweight, with a mean BMI of 23.4 (SD = 4.13). Male and female children were equally represented in the sample. The majority of children (83.5%) were attending elementary school, while the rest attended secondary school. The mean age was 8.5 years of age. Almost all participants (95.8%) heard about FAN through the brochures distributed in schools. Some participants heard about FAN through an online newspaper (1.5%), through the University website (0.7%), through a search engine (0.4%), or through a local newspaper (0.4%). The rest heard about FAN through word-of-mouth, parents meetings and other sources.

Participant satisfaction. Tables 4 and 5 summarize participants' satisfaction with the program. The majority of parents who completed the immediate post-intervention questionnaire were "positive" or "very positive" about the FAN program (83.7%).¹³ Sixty-five percent agreed that the project met their family's expectations and 74.4% said that it was easy to find the information they needed on the FAN website. Some 42.3% of parents stated that FAN motivated them to practice more physical activity, and 60.1% of parents said FAN motivated them to eat in a healthier way. Parents also reported that FAN motivated their children to eat healthier foods

(58.0%) and engage in physical activity (42.8%). Many parents (86.7%) also expressed interest in nutrition, physical activity, and other health-related programs delivered using similar Information and Communication Technologies (ICTs) in the future.

With regard to specific FAN components, most parents (81.0%) were satisfied with the letters sent to the children and most children (83.1%) liked them as well; 98.4% of parents stated that the language used in the letters was "adequate" for their children. The majority of the parents stated that the website (78.8%) and the forum (65.9%) were "very" or "quite" useful. Ninety-four percent of parents liked the videos, and nearly as many (91.6%) stated that the videos were useful. The majority of parents liked receiving the FAN e-mails (85.2%) and the SMS messages (84.8%). Most parents (87.3%) also found the e-mail reminders to visit the website useful, but slightly fewer (71.2%) thought the SMS reminders were useful.

Sixty-eight percent of children stated that they liked the FAN program, while 26.8% said that they liked it "so-so." Most children (64.5%) liked the videos shown on the website (15.7% answered "so-so" and 19.8% said "no"). More children (68.0%) than parents (41.1%) expressed interest in participating again in FAN (Tables 4 and 5).

Among the different reasons for satisfaction, promoting health, and in particular physical activity and nutrition, was of major importance for parents. Moreover, the innovative use of ICTs in Canton Ticino was perceived as fundamental in meeting busy parents' needs. Participants also appreciated the structure, regularity, and punctuality of FAN. Some parents stated that they felt cared about, and liked this feeling. Furthermore, they liked the topics and the content both online and in print. Parents particularly appreciated the direct contact of FAN

Table 4. Parents' Satisfaction with FAN (n = 389).

	%
Overall perceptions of the FAN program	
Very Positive	17.7%
Positive	66.0%
Not positive nor negative	16.1%
Negative	0.3%
Specific perceptions of the FAN program	
Met family expectations	64.9%
Easy to find information website	74.4%
Motivated adult to PA	42.3%
Motivated adult to eat healthy	60.1%
Motivated child to PA	42.8%
Motivated child to eat healthy	58.0%
Satisfaction with the letters to children	
Very satisfied	40.9%
Quite satisfied	40.1%
Neither satisfied nor unsatisfied	13.6%
Quite unsatisfied	4.1%
Very unsatisfied	1.4%
Language in letters to child was adequate	
Yes	98.4%
No	1.6%
Usefulness of the website	
Yes, it was very useful	18.4%
Yes, it was useful	60.4%
No, it was not useful	21.2%
Usefulness of the forum	
Yes, it was very useful	15.3%
Yes, it was useful	50.6%
No, it was not useful	34.1%
Liked the videos	
Yes	94.0%
No	6.0%
Usefulness of the videos	
Yes	91.6%
No	8.4%
Liked the e-mails	
Yes	85.2%
No	3.7%
I never received the e-mails	11.1%
Usefulness of the e-mails	
Yes, I visited the website immediately	32.0%
Yes, I visited the website later	55.3%
No	12.6%
Liked the SMS	
Yes	84.8%
No	12.8%
I never received the SMS	2.4%
Usefulness of the SMS	
Yes, I visited the website immediately	12.8%
Yes, I visited the website later	58.4%
No	28.8%
Interest in participating in FAN again ^a	
Yes, for sure	41.1%
I do not know	41.3%
It depends...	9.1%
No, I am not interested	6.5%
Interest in another similar project	
Yes, about nutrition and physical activity	39.8%
Yes, about nutrition only	6.6%
Yes, about physical activity only	1.7%
Yes, about other themes	38.6%
No	13.3%

^a Those saying "it depends" provided reasons why they would participate in FAN; 2% (not shown) said "Other."

with their children, through the weekly letters. They stated that FAN provided an external source of education and encouragement that was consistent with what they wanted their children to learn and do.

The main reason for dissatisfaction was the burden of the questionnaires, in particular the children's surveys that, despite being tested with the audience, were still perceived as being too long to complete. Some parents also stated that they were unable to exactly express their opinion in the questionnaires, as many were close-ended questions. Another reason for dissatisfaction among some parents and children was the use of a cursive font style for children in forth and fifth grade.¹³ While using the cursive font style was common in school, children had some difficulties in reading the font typeface chosen for FAN. Some families found FAN too theoretical, and wished for even more practical examples. Finally, parents stated that often the problem was not the program materials, content, or requested activities specifically, but their lack of time to read all FAN content, and put into practice the advice that was given.

Table 5. Children's Satisfaction with FAN (n = 370).

	%
Liked the FAN program?	
Yes	67.6%
So-so	26.8%
No	5.6%
Liked the letters?	
Yes	83.1%
So-so	10.7%
No	6.2%
Liked the videos?	
Yes	64.5%
So-so	15.7%
No	19.8%
Interested in participating in FAN again?	
Yes	68.0%
No	32.0%

Discussion

Key Findings

The Ticino community was involved in most of the aspects of the development of FAN. Following the recommended social marketing framework and co-creation activities facilitated community involvement, high participation and retention rates, and high levels of satisfaction with the program.^{30,42} By being customer-oriented and examining insights, the research team was better able to understand the target audience. During the formative research, families from the target audience contributed by emphasizing what their needs, expectations, and actual behaviors were, complementing the desk literature research previously conducted. This allowed for a deeper understanding of the target audience and the creation of a program that was best adapted to the participants. Not only did families participate in the development of FAN, but teachers and other stakeholders provided feedback, which further contributed to our understanding of the target audience and their needs. This resulted in a program that was adapted to the real and perceived needs of participants. Focusing on the behavioral difficulty perceptions of participants allowed for the development of a communication strategy that was relevant to them. Adhering to the whole marketing mix increased the opportunities of creating a successful program. For instance, the decision to deliver the content of FAN through ICTs and not through face-to-face meetings was a key finding of the formative research. Parents stated they wanted to know more about healthy nutrition and physical activity, but did not have the time to participate in meetings. Hence, we provided them with an online intervention that reached them when and where it was most convenient for them.

This was possible in Switzerland, where the use of ICTs was high. Indeed, Switzerland ranked 7th in international comparisons of home Internet access, with 85% of households having Internet access in 2010.⁵³ In 2010, the Internet was used regularly by 40% of people with an income of less than 4'000 CHF per month,⁵⁴ the medium salary being 4'983 CHF per month. Regarding mobile phones, the penetration rate was 120 subscriptions per 100 inhabitants.⁵⁵ Although using ICTs for promoting health was quite new, looking for health information ranked 4th among the different reasons for using the Internet (eg, communication through e-mail, news reading, interaction with public administration, shopping, movies, etc.).⁵⁶ That said, it is possible that these data were slightly overinflated, as they measured subscriptions, and not the number of cellphones used or unique users. Indeed it could be that people have more than one subscription, but do not use more than one at a time, or on the contrary that they use more than one phone at a time, as well as they could share their phone with another family member, for example.

Most parents and children expressed satisfaction with the FAN program and the various program components, and found them to be useful. Many parents said that FAN served as motivator for them and for their children to eat healthier. Some parents stated that FAN motivated them and their children to be physically active. Reasons for satisfaction varied, but all comments highlighted the importance of creating a program that suited both the needs and the wants of the target audience. Listening to the families allowed us to create such a program, one that was thus appealing to them. Even when

expressing their dissatisfaction, parents and children were providing insightful and constructive feedback and suggestions on how to improve FAN (ie, use the e-mail and SMS as content-delivery channels, rather than just as a reminder, or decreasing the amount of information delivered per week, so that they would have more time to process it). The uniqueness of FAN, coupled with an in-depth analysis of the target audience, involving parents and children in the process of developing the program, contributed to its success.

The recruitment goal of 250 families was far exceeded, with more than 500 parents and more than 700 children taking part.^{13,14} Furthermore, retention rates in the program and assessment completion immediately post-intervention (over 70% for parents and 50% for children)^{13,14} were comparable with or higher than other similar studies.^{14,38,48,57} This can be attributed, at least partially, to the formative research and the co-creation activities conducted in the development phase of FAN.

Lessons Learned

Developing successful social marketing campaigns requires ample preparation time, and this was time well spent. Program developers need to be flexible, and able to consolidate scientific evidence with the real and perceived needs of the target population, and other stakeholders.^{58,59} In the case of FAN, a two-month intervention, roughly ten months were dedicated to program planning and development. Furthermore, based on existing scientific evidence, programs with similar objectives have typically been implemented for at least three months in duration.^{32,48-50} However, two months were selected as a compromise between establishing a program based upon a customer orientation and best practice.⁶⁰

Another lesson learned from FAN was that social marketers and program planners need to keep their

eyes and their ears always open. While formative research was conducted with the target population and other stakeholders, valuable input was also provided to the research team in an ongoing manner throughout the program implementation phase. Such feedback was incorporated into the program when possible and appropriate. For example, families requested that FAN include recipes that children could prepare in the weekly letters addressed to children, which was a recommendation that was adopted mid-program implementation.

Immediate post-study results also provide insights that can be incorporated into future program revisions. As the results showed, overall, FAN met participants' expectations. For example, looking at the usefulness of both e-mail and SMS reminders, it can be noted that they did function as reminders to visit the FAN website. From the results, it appears that most parents visited the website later, when they had time. Hence, this appeared to be in sync with the objectives of FAN, as being accessible whenever and wherever parents preferred.

Nonetheless, improvements to program components and the promotion of the program should be made based upon posttest debriefing assessments to better understand participant experiences, as reported in survey findings. Increasing the participation in co-creation activities, both initially, during, and in post-program debriefings, would likely result in a program that is liked even more by the population and may be more effective in the long term.

Limitations

The development of FAN was not without challenges. FAN was developed in a State where several other programs with similar aims, but separately targeting adults or children existed. Resources were scarce, which resulted in limited human resources working on the development

of FAN, with high workloads and long working hours for relatively few people. This necessitated the scaling back of some of the initial plans for FAN (eg, website features, for which a higher-level programmer was needed).¹³ Recruiting a larger sample for the pre-testing phase would have provided further insight on the development of FAN and the materials used, which could have limited some of the dissatisfaction expressed by some parents and children.¹³ Furthermore, it is plausible that some participants were involved in one or more of the other cantonal programs, which could have influenced their satisfaction with or expectations from FAN. Finally, while we would expect little variation in the interpretation of our measures of program satisfaction, we did not test the validity of these items in this study. And, although we did measure changes in behavior over time as part of the larger trial, the findings included in this paper were limited to participant perceptions of the program, satisfaction with various components, and motivation to make behavioral changes. Having included behavioral measures certainly might have helped to verify the self-reported changes in motivation for engaging in physical activity and healthier eating, however that was not the intent of this paper.

Implications for Research & Practice

Previous studies suggested that using a social marketing approach to develop programs promoting healthy diet and physical activity behavior can be effective.^{22,23-26} Our study highlighted the importance of the formative research and the co-creation activities. By listening to and understanding the needs of the target audience, the research team

developed a program that reached high participation, retention, and satisfaction rates. The FAN case study also showed the importance of establishing good partnerships with stakeholders, seen for example through the promotion activity that took place through the schools.

Future projects aimed to promote dietary and physical activity behaviors for families, should use the social marketing framework. The development of such programs should be described in detail and shared among practitioners and researchers, in order to clarify exactly what was done and create further evidence of best practice. Program developers should also devote enough time and effort during the formative research phase, in order to create programs that are customer oriented, and are better able to incorporate or adapt scientific evidence to the needs of the target audience, in order to increase likelihood of success.

Conclusions

Social marketing was a useful framework that provided guidance for designing a community-based healthy diet and physical activity promotion program for families. Addressing each of the eight consistency criteria allowed us to fully consider factors that helped us reach the population with a program that parents and children were willing to participate in and were ultimately very satisfied with. Elements of FAN success were the co-creation activities conducted with the population and the decision to address the family environment, by delivering the product to each member (parents and children). Hence, we recommend that community health promotion programs adopt the aforementioned social marketing framework.

Acknowledgements

Funding/Support: FAN was funded by the Health Promotion and Evaluation Service, of the Cantonal Doctor’s Office, in the Department of Health and Social Affairs of Canton Ticino (Servizio di promozione e di valutazione sanitaria, Ufficio del medico cantonale, Dipartimento della sanità e della socialità, Repubblica e Cantone Ticino) and Health Promotion Switzerland (Promotion Sante Suisse) as part of the Canton Ticino “Healthy Body Weight” (“Peso Corporeo Sano”) program. The materials and content expressed herein are those of the authors and do not necessarily reflect the official views of the funding agencies.

Additional Contributions: The authors thank the following individuals and agencies for their invaluable contributions to the FAN project: Health Promotion Switzerland; Antonella Branchi, Alessia Antonietti, and Rubina Bianchetti at the Health Promotion and Evaluation Service, Cantonal Doctor’s Office, in the Department of Health and Social Affairs of Canton Ticino (Servizio di promozione e di valutazione sanitaria, Ufficio del medico cantonale, Dipartimento della sanità e della socialità, Repubblica e Cantone Ticino); the Offices of Primary and Middle School Education, in the Department of Education, Culture and Sports of Canton Ticino (Ufficio delle scuole comunali e Ufficio dell’insegnamento medio, Dipartimento dell’educazione, della cultura e dello sport, Repubblica e Cantone Ticino); the dieticians, teachers, and school directors who contributed to the program development and recruitment; and all the parents and children who participated in the formative research and in the FAN program intervention.

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Author Information

Natalie Rangelov is a Doctoral Student and Research Assistant in the Institute for Public Communication (ICP) at Università della Svizzera italiana (USI). She has been a member of the BeCHANGE Research Group since 2010. Natalie holds a MA in Public Management and Policy. Her research focuses on public communication and innovative approaches in the field of health behavior change and support.

L. Suzanne Suggs, PhD, MS, CHES, is an Associate Professor of Social Marketing and Head of the BeCHANGE Research Group in the Institute for Public Communication (ICP), Università della Svizzera italiana, CH. She is also a Visiting Reader in the Institute of Global Health Innovation, Faculty of Medicine, at Imperial College London, UK. Her research focuses on health behavior change communication and social change through Information and Communication Technologies (ICTs). Suzanne is a co-founder and a Board Member of the European Social Marketing Association. She is an Associate Editor of Global Health Communication and on the Editorial Review Board of the Journal of Health Communication.

All authors have equally contributed to the development and implementation of the program, as well as to the data analysis and write up of the manuscript. All authors declare that each of us has approved the manuscript.